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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/539,210	03/30/2000	Shinobu Sumi	00213/LH	7836

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EXAMINER

LONG, HEATHER R

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/539,210

Applicant(s)

SUMI ET AL.

Examiner

Heather R Long

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/30/2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 12-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/30/2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4. 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "101" and "102" have both been used to designate the top gate line in Fig. 8. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The disclosure is objected to because of the following informalities:

a. On page 21, line 17 the equation " $Tp_old = n \times (Tread + Ta + Tread)$ " should read $Tp_old = n \times (Treset + Ta + Tread)$ – due to the description given in the disclosure on page 21, lines 1-5.

b. On page 36, line 17 it refers to the "sixth" embodiment, however there is no sixth embodiment.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4 and ~~7-8~~⁵⁻⁹ are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada (U.S. Patent 5,461,419).

Regarding claim 1, Yamada discloses in Fig. 12 a drive control method of a photosensor (10) array including a plurality of rows, each having a plurality of photosensors (10) arranged to form a matrix (col. 11, lines 18-27), comprising: a first step for applying a reset pulse (ϕ_{tgn}) to a predetermined row of the photosensor (10) array so as to initialize the plural photosensors (10) in the row; a second step of applying a read pulse (ϕ_{bgn}) to the plural of photosensors (10) of the row after completion of the initialization, after a charge accumulating period (τ_N) for accumulating charges generated by light irradiation, and after a pre-charge operation in which a predetermined pre-charge pulse (ϕ_{pg}) is applied to the plurality of photosensors (10), to output the voltage generated by the charges accumulated during the charge accumulating period (τ_N) as an output voltage (V_{out}) (col. 11, lines 2-17), wherein the

timings of applying the pre-charge pulse (ϕ_{pg}) and the read pulse (ϕ_{bgn}) for each row are set not to overlap in time with each other, and the charge accumulating periods (τ_N) for the rows have an overlapping period between at least two different rows (Fig. 2).

Regarding claim 2, Yamada discloses in Fig. 12 the drive control method for a photosensor (10) system, wherein the reset pulses (ϕ_{tgn}) are successively applied to the rows of the photosensor (10) array in the first step so as to successively initialize the plurality of photosensors (10), and read pulses (ϕ_{bgn}) are successively applied to the plurality of photosensors (10) in the second step after the initialization, after a predetermined charge accumulating period (τ_N) and after completion of the pre-charge operation performed by the pre-charge pulse (ϕ_{pg}) to output successively the voltages generated by the charges accumulated during the charge accumulating period (τ_N) as the output voltages (V_{out}) (col. 11, lines 2-27).

Regarding claim 3, Yamada discloses in Fig. 12 the drive control method for a photosensor (10) system, wherein the applying period of the pre-charge pulse (ϕ_{pg}) and the read pulse (ϕ_{bgn}) for each row in the second step is equal to the sum of the pulse width of the pre-charge pulse (ϕ_{pg}) and the pulse width of the read pulse (ϕ_{bgn}).

Regarding claim 4, Yamada discloses in Fig. 12 the drive control method for a photosensor system, wherein the applying period of the reset pulse (ϕ_{tgn}) for each row in the first step and the applying period of each pre-charge pulse (ϕ_{pg}) and the read pulse (ϕ_{bgn}) for each row in the second step is longer than the sum of the pulse width of the pre-charge pulse (ϕ_{pg}) and the pulse width of the read pulse (ϕ_{bgn}).

Regarding claim 5, Yamada discloses in Fig. 12 the drive control method of a photosensor (10) system, wherein the applying period of the reset pulse (ϕ_{tgn}) for each row in the first step and the applying period of the pre-charge pulse (ϕ_{pg}) and the read pulse (ϕ_{bgn}) for each row in the second step is equal to the sum of the pulse width of reset pulse (ϕ_{tgn}) in the first step, the pulse width of the pre-charge pulse (ϕ_{pg}) and the pulse width of the read pulse (ϕ_{bgn}) in the second step.

Regarding claim 6, Yamada discloses in Fig. 12 the drive control method for a photosensor (10) system, wherein the charge accumulating period (τ_N) in the second step is set at a period in which the applying time of the pre-charge pulse (ϕ_{pg}) and the read pulse (ϕ_{bgn}) for each row in the second step constitutes a unit time.

Regarding claim 7, Yamada discloses in Fig. 1 the drive control method for a photosensor (10) system, wherein each of the photosensor (10) comprises a source electrode (16) and a drain electrode (17) arranged with a channel region consisting of a semiconductor layer (15) interposed therebetween, and a first electrode (19) and second electrode (13) formed at least above and below the channel region with insulating layers (18 and 14) interposed therebetween, wherein the charges are generated and accumulated in an amount corresponding to the amount of light irradiating the channel region (col. 4, lines 22-40).

Regarding claim 8, Yamada discloses the drive control method for a photosensor (10) system, wherein the reset pulse (ϕ_{tgn}) is applied to the first electrode (19) of the photosensor (10) in the first step to initialize the photosensor (10); and the pre-charge pulse (ϕ_{pg}) is applied to the drain electrode (17) of the photosensor (10) in the second

step, and the read pulse (ϕ_{bgn}) is applied to the second electrode (13) of the photosensor (10) after completion of the pre-charge operation performed by application of the pre-charge pulse (ϕ_{pg}) to output the voltage of the drain electrode (17) as an output voltage (V_{out}) (col. 11, lines 2-17).

Regarding claim 9, Yamada discloses in Fig. 12 the drive control method for a photosensor (10) system, wherein the applying period of the pre-charge pulse (ϕ_{pg}) for each row and the read pulse (ϕ_{bgn}) in the second step is equal to the sum of the pulse width of the pre-charge pulse (ϕ_{pg}) and the pulse width of the read pulse (ϕ_{bgn}) in the second step.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada as applied to claim 1 and 9 above, and further in view of Shoda et al. (U.S. Patent 6,429,898).

Yamada discloses in Fig. 12 a drive method control for a photosensor (10) system, wherein the charge accumulating periods (τ_N) for the rows in the second step are equal to or an integer number times as long as the sum. However, it is lacking the

teaching of setting the charge accumulating periods for the rows being set different from each other depending on the rows.

Shoda et al. discloses a drive control method for a photosensor (10) system, wherein the charge accumulating periods (T_s) for the rows are set different from each other depending on the rows (col. 4, lines 29-36 and col.7, line 66 – col. 8, line 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the photosensor used by Yamada with the teachings of Shoda et al. and set the accumulation times of the rows differently in order to avoid a shift in the apparent position of the image.

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada as applied to claims 1 and 9 above, and further in view of Izawa et al (U.S. Patent 4,870,493).

Yamada discloses in Fig. 12 the drive control method for a photosensor (10) system, wherein the reset pulses (ϕ_{tgn}) are applied to the rows of the photosensor (10) array in the first step, and the pre-charge pulses (ϕ_{pg}) are applied in the second step at the time interval equal to or an integer number times as long as the sum, and the read pulses (ϕ_{bgn}) are applied to each row (col. 11, lines 2-17). However, it is lacking the teaching of resetting all the rows simultaneously.

Izawa et al. discloses a driving control method for a photosensor, wherein the reset pulses are simultaneously applied to the rows of the photosensor array in the first step (col.3, lines 20-23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the photosensor used by Yamada with the teachings of Izawa et al. and reset all the rows simultaneously in order to avoid the picture element signal appearing on the horizontal signal lines corresponding to the preceding vertical scanning lines and therefore the coupling for the readout picture element signal can substantially be prevented.

Allowable Subject Matter

6. Claims 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: prior art does not teach or fairly suggest a drive control method for a photosensor system, wherein the reset pulses are applied in the first step to each row of the photosensor array at the time interval equal to or an integer number times as long as the sum, and after completion of the reset pulse application to all the rows, the pre-charge pulses are applied in the second step and read pulses are applied to each row in the order opposite to the order of applying the reset pulses to each row of the photosensor array in the first step.

Prior art also does not teach or fairly suggest a drive control method for a photosensor, wherein the reset pulses are successively applied in the first step to each row of the photosensor array at the time interval equal to or an integer number times as

long as the sum; the pre-charge pulses are applied in the second step in synchronism with the first step, and read pulses are applied to each row in the order opposite to the order of applying the reset pulses to each row of the photosensor array in the first step; and after completion of the pre-charge voltage application and the read pulse application, and after lapse of the sum of time, the pre-charge pulses are applied and the read pulse is applied again to each row in the order equal to the order of applying the read pulse to each row at the time interval equal to or an integer number times as long as the sum of time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heather R Long whose telephone number is 703-305-0681. The examiner can normally be reached on Mon. - Thurs.: 7:00 am - 4:30 pm, and every other Fri.: 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

hrl
September 16, 2003


NGOC-YEN VU
PRIMARY EXAMINER